

Claims

1. A cassette intended to be inserted into an irrigation or aspiration machine used in endoscopy comprising an irrigation tube (1i) or an aspiration tube (1a) and a support (5) furnished with one (3i) or with two inlet plugs (3i, 3a), and with one (7i) or with two outlet plugs (7i, 7a), the tube or the two tubes forming an elbow (9i, 9a) for engaging with the inlet and outlet plug or the two inlet and outlet plugs in a respectively incoming (E) and outgoing (S) direction of flow and forming a segment of irrigation (11i) or of aspiration (11a) pumping in the incoming direction (E) of flow, characterized in that the support (5) comprises a T guide (13) shaped to the head of the T so as to protect the elbow (9i, 9a) of each tube (1i, 1a) and shaped along the body of the T as a slot (19) guiding the tube or the two tubes in the outgoing direction of flow (S), the T guide (13) running between the inlet plug or the two inlet plugs (3i, 3a) so as to form the segment of irrigation (11i) or of aspiration (11a) pumping on either side of the slot (19) between each inlet plug (3i, 3a) and the head of the T.
2. The cassette as claimed in claim 1, characterized in that the head of the T comprises a protective hood (14) for the elbow (9i, 9a) of each tube.
3. The cassette as claimed in claim 1 or 2, characterized in that the head of the T comprises a double rounding (17) for guiding the elbow (9i, 9a) of each tube.
4. The cassette as claimed in claim 1, characterized in that the T guide (13) is fixed to a housing (21) integrated with the support (5) and provided

with one (23i) or with two inlet channels (23i, 23a) open at an inlet end (151, 15a) and emerging at an opposite end via the inlet plug (3i) or the inlet plugs (3i, 3a) so as to ensure communication
5 with the tube (1i) or the two tubes (1i, 1a) in the incoming direction of flow (E).

5. The cassette as claimed in claim 4, characterized in that the housing (21) is provided with a third
10 inlet channel (25) open at one end (26) and disposed bypass-wise with respect to the inlet channel (23a) communicating with the aspiration tube (1a) so as to emerge, at an opposite end, via the inlet plug (3a) ensuring communication with
15 the aspiration tube (1a).

6. The cassette as claimed in claim 5, characterized in that the inlet channel (23a) communicating with the aspiration tube (1a) and the third inlet
20 channel (25) mounted bypass-wise open out, at the opposite end to the inlet plug (3a) ensuring communication with the aspiration tube (1a), into a chamber (31) integrated with the housing and receiving two complementary aspiration tubes (33, 35) engaging with these two channels (23a, 25)
25 while being disposed some distance from a back wall (36) of the chamber (31) so as to be compressed against this back wall (36) in a position of obstruction of this inlet channel (23a) communicating with the aspiration tube (1a)
30 or of this third inlet channel (25).

7. The cassette as claimed in claim 4, 5 or 6, characterized in that the housing (21) is provided
35 with one (29i) or with two outlet channels (29i, 29a) open at an outlet end and emerging at an opposite end via the outlet plug (7i) or the outlet plugs (7i, 7a) so as to ensure

communication with the tube (1i) or the two tubes (1i, 1a) in the outgoing direction of flow (S).

- 5 8. The cassette as claimed in claim 7, characterized
 in that the outlet channel (29i) or the outlet
 channels (29i, 29a) are carried by supports (27)
 extending in a plane perpendicular to a plane of
 the housing so as to be raised up with respect to
 the inlet channels (23i, 23a, 25).
- 10 9. The cassette as claimed in claim 7 or 8,
 characterized in that the housing (21) is provided
 with a communication pathway (28) between the
 outlet channel (29i) communicating with the
15 irrigation tube (1i) and the inlet channel (23a)
 communicating with the aspiration tube (1a) or the
 third inlet channel (25) mounted bypass-wise with
 respect to the latter.
- 20 10. The cassette as claimed in claim 9, characterized
 in that the communication pathway (28) is ensured
 by a tube disposed in a chamber (43) and some
 distance from a back wall (45) of this chamber so
 as to be compressed against this back wall in a
25 position of obstruction of this communication
 pathway.
11. The cassette as claimed in any one of claims 1 to
 10, characterized in that the support (5), the T
30 guide (13) with the double rounding (17) at the
 head of the T and the slot (21) of the body of the
 T, the housing integrated with the support (21)
 provided with the inlet channel (23i) or with the
 inlet channels (23i, 23a), the third inlet channel
35 (25), the inlet plug (3i) or the inlet plugs (3i,
 3a), the outlet plug (7i) or the outlet plugs (7i,
 7a) and the supports (27) are in one piece of
 injection-molded plastic.

12. An irrigation and aspiration machine used in endoscopy, intended to receive a cassette as claimed in one of claims 1 to 11, comprising a peristaltic irrigation pump (51i) with shoe (53i) mounted in correspondence with wheel (54i) with rollers (55i), one (53i) on a chassis (61) and the other (54) on a carriage (63) moveable with respect to the chassis in a direction of translation (T) between a rest position in which the shoe (53i) is unclamped with respect to the rollers (55i) and a pumping position in which the shoe (53i) is reclamped with respect to the rollers (55i) and a cassette holder (65) mounted on the chassis (61) so as to extend in a plane (P) perpendicular to the direction of translation (T) and passing between the shoe (53i) and the wheel (54i) with rollers (55i) of the irrigation pump, and comprising a peristaltic aspiration pump (51a) with shoe (53a) mounted in correspondence with wheel (54a) with rollers (55a), one (53a) on the chassis (61) and the other (54a) on the carriage (63) so as to unclamp or reclamp said shoe (53a) with respect to said rollers (55a) in the direction of translation (T) upon the unclamping or reclamping of the shoe (53i), with respect to the rollers (55i) of the peristaltic irrigation pump (51i) in the rest position or the pumping position, the plane (P) in which the cassette holder (65) extends passing likewise between the shoe (53a) and the wheel (54a) with rollers (55a) of the peristaltic aspiration pump, the cassette holder (65) being mounted moveably with respect to the chassis (61) in the direction of translation (T) so as to be driven in translation by the carriage (63) when the latter is displaced from the rest position to the pumping position, characterized in that the cassette holder (65) is mounted moveably with respect to the chassis (61) so as to be displaced parallel to the plane (P)

perpendicular to the direction of translation (T),
between a cassette insertion position where the
cassette holder (65) is close to the shoes (53i,
53a) and wheels (54i, 54a) with rollers of the
5 peristaltic irrigation (51i) and aspiration (51a)
pumps and a cassette ejection position where the
cassette holder (65) is away from said shoes and
said wheels with rollers, said insertion and
ejection position defined respectively by a first
10 (86) and a second abutment (64) with respect to
the chassis (61).

13. The irrigation and aspiration machine with
cassette as claimed in claim 12, characterized in
15 that the cassette holder (65) is provided with a
means of locking (73) mounted pivotably with
respect to the cassette holder (65) so as to be
actuated by an abutment (75) fixed to the chassis
(63) and pivot with respect to the cassette holder
20 (65) when the latter displaces parallel to the
plane (P) perpendicular to the direction of
translation (T), from the cassette insertion
position to the cassette ejection position.

25 14. The irrigation and aspiration machine with
cassette as claimed in claim 12 or 13,
characterized in that the shoes (53i, 53a) of the
peristaltic irrigation (51i) and aspiration (51a)
pumps are mounted moveably with respect to the
30 chassis (65) in the direction of translation (T).

15. The irrigation and aspiration machine with
cassette as claimed in claim 12 or 13,
characterized in that it comprises air pressure
35 sensors communicating with air pressure plugs (95)
carried by the moveable carriage (63).

16. The irrigation and aspiration machine with
cassette as claimed in claim 12 or 13,

characterized in that the carriage (63) carries two (67a, 69a) or three (71) shutters moveable with respect to the carriage (63) in the direction of translation (T).

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17. The irrigation and aspiration machine with cassette as claimed in claim 12 or 13, characterized in that the carriage (63) carries cassette recognition fingers (77) moveable with respect to the carriage in the direction of translation (T).

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18. The irrigation and aspiration machine with cassette as claimed in claim 12 or 13, characterized in that it comprises a means of centering (79) mounted on the carriage (63) so as to be displaced with the carriage (63) in the direction of translation (T) from the rest position to the pumping position and after the cassette holder has come near to the shoes (53i, 53a) of the two irrigation and aspiration pumps in the cassette insertion position.

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